

CLAIMS

What is claimed is:

1. A high voltage supply device, comprising:
  - a power supply rectifying an externally inputted ac voltage and generating a first dc voltage and a second dc voltage;
  - a controller generating a pulse signal having a predetermined duty ratio and a control signal having a first logic level when the first dc voltage is applied;
  - a high voltage generator boosting the second dc voltage based on the pulse signal; and
  - a power supply controller driven when the control signal is in the first logic level, and cutting off an application of the second dc voltage to the high voltage generator when the control signal is in a second logic level.
2. The high voltage supply device as claimed in claim 1, wherein the high voltage generator includes:
  - an amplifier amplifying the pulse signal from the controller, wherein the control signal is a pulse width modulation (PWM) signal;
  - a comparator comparing the PWM signal outputted from the amplifier and a boosted voltage;
  - a voltage booster boosting the second dc voltage based on switching operations according to an output of the comparator; and
  - a rectifier rectifying an output of the voltage booster.
3. The high voltage supply device as claimed in claim 2, wherein the amplifier includes:
  - a transistor, the emitter of which is connected to a third dc voltage having a potential level between potential levels of the first dc voltage and the second dc voltage, and the base of which is applied with the control signal; and
  - a resistor connected between a collector of the transistor and a ground potential.
4. The high voltage supply device as claimed in claim 2, wherein the comparator inputs an output of the amplifier through a positive input terminal thereof and inputs a fed-back boosted voltage through a negative input terminal thereof.
5. The high voltage supply device as claimed in claim 2, wherein the voltage booster includes:

a transistor, the emitter of which is grounded and the base of which is connected to an output of the comparator; and  
a transformer, the input terminals of which are connected to a dc voltage applied through the power supply controller and the collector of the transistor respectively.

6. The high voltage supply device as claimed in claim 2, wherein the rectifier is a N-times multiple voltage rectifier boosting a potential level of a voltage outputted from the voltage booster.

7. The high voltage supply device as claimed in claim 1, wherein the power supply controller includes:

a first transistor, an emitter of which inputs the second dc voltage and a collector of which outputs the second dc voltage;  
a first resistor connected between the emitter of the first transistor and a base of the first transistor;  
a second resistor, one end of which is applied with the control signal;  
a second transistor, a base of which is connected to the other end of the second resistor and an emitter of which is grounded;  
a third resistor connected to the base and the emitter of the second transistor; and  
a fourth resistor connected between the collector and base of the second transistor.

8. The high voltage supply device as claimed in claim 1, wherein the power supply controller is an NMOS transistor, a drain and a gate of which are inputted with the dc voltage, and a source of which becomes an output terminal.

9. A high voltage control method, comprising:  
rectifying an externally inputted ac voltage;  
generating a first dc voltage and a second dc voltage;  
generating a pulse signal having a preset duty ratio and a control signal having a first logic level based on the first dc voltage;  
boosting the second dc voltage based on the pulse signal; and  
cutting off the voltage boosting when the control signal is a second logic level.

10. The high voltage control method as claimed in claim 9, wherein the boosting includes:

- amplifying the pulse signal;
- comparing the amplified pulse signal and the boosted voltage;
- boosting the second dc voltage based on a result of the comparison; and
- rectifying the boosted voltage.

11. A high voltage generator, comprising:  
an amplifier amplifying a signal to a predetermined level;  
a rectifier;  
a comparator comparing the amplified signal output from the amplifier and a fed-back voltage from the rectifier; and  
a voltage booster boosting an input voltage based on the comparison of the comparator;  
the rectifier rectifying the boosted voltage output from the voltage booster.